



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/827,046

04/19/2004

Brent R. Jones

A2031Q-US-DIV

2389

7590

03/10/2006

Patent Documentation Center

Xerox Corporation

Xerox Square 20th Floor

100 Clinton Ave. S.

Rochester, NY 14644

EXAMINER

LIANG, LEONARD S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/827,046	Applicant(s) JONES ET AL.	
	Examiner Leonard S. Liang	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6 and 15-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6 and 15-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

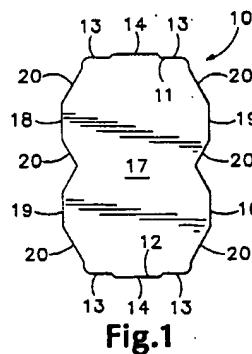
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6 and 15-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5510821) in view of Crawford (US Pat 5784089).

Jones et al discloses:

- {claim 4} An ink stick for use in a solid ink feed system of a phase change ink jet printer (figure 1); wherein the ink stick insertion perimeter includes at least three nonlinear key elements (figure 1, reference 14 (top); reference 14 (bottom), 20); wherein the first and second nonlinear key elements do not intersect one another (figure 1, reference 14 (top); reference 14 (bottom))



Art Unit: 2853

- {claim 5} wherein the ink stick insertion perimeter includes at least one linear perimeter segment between the first nonlinear key element and the second nonlinear key element (figure 1, reference 19)
- {claim 15} An ink stick for use in a solid ink feed system of a phase change ink jet printer (figure 1); wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments (figure 1, left and right sides); wherein the ink stick insertion perimeter includes at least one end perimeter segment (figure 1, top or bottom side); wherein the end perimeter segment is oriented at an angle with respect to the lateral perimeter segments (figure 1); wherein the end perimeter segment forms a leading portion of the ink stick moves in the feed direction along the feed channel (figure 1); wherein the ink stick insertion perimeter includes at least three non linear key elements (figure 1, reference 14, 20); wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter (figure 1, reference 20); wherein a second one of the nonlinear key elements is on a second one of the lateral perimeter segments of the ink stick insertion perimeter (figure 1, reference 20); and wherein a third of the nonlinear key elements is on the end perimeter segment of the ink stick insertion perimeter (figure 1, reference 14)
- {claim 17} the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and the end perimeter segment is substantially linear apart from the nonlinear key element (figure 1)

Art Unit: 2853

- {claim 18} wherein the first and third nonlinear key elements do not intersect each other (figure 1, reference 14, 20)
- {claim 19} wherein the second and third nonlinear key elements do not intersect one another (figure 1, reference 14, 20)
- {claim 22} A solid ink feed system for a printer (figure 1; abstract)
- {claim 29} A method of inserting a solid ink stick into a feed channel of a solid ink printer (figure 1; abstract); providing an ink stick having an ink stick insertion perimeter (figure 1); moving the ink stick in a feed direction in the feed channel (figure 4); wherein at least one of the nonlinear key element shapes is oriented at least partially transverse to the feed direction (figure 1, reference 14)
- {claim 30} wherein at least one of the nonlinear key element shapes is oriented substantially parallel to the feed direction (figure 1, left and right sides)

Jones et al differs from the claimed invention in that it does not disclose:

- {claim 4} wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel; an ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction; wherein a first of the nonlinear key elements is along a first portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction; wherein the first nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening

Art Unit: 2853

- {claim 6} wherein each of the nonlinear key elements has a shape substantially identical to the shape of a portion of the insertion opening of the solid ink feed system
- {claim 15} wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel; an ink stick body adapted to be inserted in the insertion direction into the feed channel, the ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction; wherein the third nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening
- {claim 16} wherein as the ink stick is inserted in the insertion direction, the end perimeter segment is at least partially transverse to the feed direction
- {claim 20} wherein the shapes of the first, second, and third nonlinear key elements are substantially identical to shaped elements of the insertion opening
- {claim 21} wherein the ink stick insertion shape substantially matches an insertion opening perimeter shape
- {claim 22} a longitudinal feed channel having an insertion end and a feed direction; an insertion key plate having a key plate opening through it to provide access in an insertion direction to the feed channel; wherein the insertion direction is different from the feed direction; wherein the key plate opening has an insertion opening perimeter; wherein the insertion opening perimeter includes

Art Unit: 2853

two lateral opening perimeter segments and a transverse opening perimeter segment; wherein the transverse opening perimeter segment intersects at least one of the lateral opening perimeter segments at an angle other than 180° ; wherein the insertion opening perimeter includes a first nonlinear key element on a first one of the lateral perimeter segments of the ink stick insertion perimeter; wherein the insertion opening perimeter includes a second of the nonlinear key elements on a second one of the lateral perimeter segments of the ink stick insertion perimeter; and wherein the insertion opening perimeter includes a third nonlinear key element on the transverse segment of the ink stick insertion perimeter

- {claim 23} the lateral opening perimeter segments are substantially parallel one another; and the transverse opening perimeter segment is substantially perpendicular to the lateral opening perimeter segments
- {claim 24} wherein the insertion opening perimeter includes a second transverse perimeter segment; the second transverse perimeter segment is substantially parallel to the first transverse perimeter segment; and the insertion opening perimeter includes a fourth nonlinear key element on the second transverse perimeter segment
- {claim 25} wherein the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and the transverse perimeter segment is substantially linear from the nonlinear key element

Art Unit: 2853

- {claim 26} wherein the first and third nonlinear key elements do not intersect each other
- {claim 27} wherein the second and third nonlinear key elements do not intersect one another
- {claim 28} first and second nonlinear key elements on the lateral perimeter segments correspond in shape and size to the first and second nonlinear key elements of the insertion opening perimeter; and a third nonlinear key element on the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter
- {claim 29} aligning the ink stick insertion perimeter with an insertion opening of a key plate; inserting the ink stick in an insertion direction through the insertion opening; wherein the feed direction is different from the insertion direction; wherein aligning the ink stick insertion perimeter with the insertion opening comprises aligning at least three nonlinear key element shapes of the insertion opening of the key plate

Crawford discloses:

- {claim 4} wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel (figure 1, reference 24A-D, 25A-D)
- {claim 15} wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an

Art Unit: 2853

insertion direction, different from the feed direction, into the feed channel (figure 1, reference 24A-D, 25A-D)

- {claim 22} a longitudinal feed channel having an insertion end, a melt end, and a feed direction from the insertion end toward the melt end (figure 2, reference 25A-D, 29A-D); an insertion key plate having a key plate opening through it to provide access in an insertion direction to the insertion end of the feed channel (figure 1, reference 24A-D, 25A-D); wherein the insertion direction is different from the feed direction (figure 1); wherein the key plate opening has an insertion opening perimeter (figure 1)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Crawford into the invention of Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of providing a keying system which prevents improper insertion of ink sticks into the feed channel. The combination naturally suggests:

- {claim 4} an ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction; wherein a first of the nonlinear key elements is along a first portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction; wherein the first and second nonlinear key elements each have a shape substantially identical to the shape of a portion of the insertion opening

Art Unit: 2853

- {claim 6} wherein each of the nonlinear key elements has a shape substantially identical to the shape of a portion of the insertion opening of the solid ink feed system
- {claim 15} an ink stick body adapted to be inserted in the insertion direction into the feed channel, the ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction; wherein the third nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening
- {claim 16} wherein as the ink stick is inserted in the insertion direction, the end perimeter segment is at least partially transverse to the feed direction
- {claim 20} wherein the shapes of the first, second, and third nonlinear key elements are substantially identical to shaped elements of the insertion opening
- {claim 21} wherein the ink stick insertion shape substantially matches an insertion opening perimeter shape
- {claim 22} wherein the insertion opening perimeter includes two lateral opening perimeter segments and a transverse opening perimeter segment; wherein the transverse opening perimeter segment intersects at least one of the lateral opening perimeter segments at an angle other than 180°; wherein the transverse opening perimeter segment is on a portion of the key plate opening toward the melt end of the longitudinal feed channel; wherein the insertion opening perimeter includes a first nonlinear key element on a first one of the lateral perimeter segments of the ink stick insertion perimeter; wherein the insertion opening perimeter includes a

second of the nonlinear key elements on a second one of the lateral perimeter segments of the ink stick insertion perimeter; and wherein the insertion opening perimeter includes a third nonlinear key element on the transverse segment of the ink stick insertion perimeter

- {claim 23} the lateral opening perimeter segments are substantially parallel one another; and the transverse opening perimeter segment is substantially perpendicular to the lateral opening perimeter segments
- {claim 24} wherein the insertion opening perimeter includes a second transverse perimeter segment; the second transverse perimeter segment is substantially parallel to the first transverse perimeter segment; and the insertion opening perimeter includes a fourth nonlinear key element on the second transverse perimeter segment
- {claim 25} wherein the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and the transverse perimeter segment is substantially linear from the nonlinear key element
- {claim 26} wherein the first and third nonlinear key elements do not intersect each other
- {claim 27} wherein the second and third nonlinear key elements do not intersect one another
- {claim 28} first and second nonlinear key elements on the lateral perimeter segments correspond in shape and size to the first and second nonlinear key elements of the insertion opening perimeter; and a third nonlinear key element on

the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter

- {claim 29} aligning the ink stick insertion perimeter with an insertion opening of a key plate; inserting the ink stick in an insertion direction through the insertion opening; wherein the feed direction is different from the insertion direction; wherein aligning the ink stick insertion perimeter with the insertion opening comprises aligning at least three nonlinear key element shapes of the insertion opening of the key plate; and wherein moving the ink stick in a feed direction in the feed channel comprises moving the ink stick in the feed direction past the nonlinear key element oriented at least partially transverse to the feed direction

Response to Arguments

Applicant's arguments filed 12/22/05 have been fully considered but they are not persuasive.

The applicant argues, "The final Office Action asserts that it would be obvious to one having ordinary skill in the art to combine the references to produce non-linear key elements along a portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction, with the non-linear key element having a shape substantially identical to the shape of a portion of the insertion opening. Although some persons might consider such an arrangement an attractive goal, and the benefits of such an arrangement might be speculated upon, obtaining such an arrangement from the teaching of the reference is not possible. The insertion openings...omit a transverse segment of the opening perimeter, opening instead into the elongate slots 25A, 25B,

Art Unit: 2853

25C, 25D. The reference shows the yoke 17 connected to the ink stick feed cover 30. The text refers to the constant force springs that are not shown. Those familiar with the art would be aware...that the constant force springs require the open slots 25A, 25B, 25C, 25D to allow the movement of the cover 30... Providing an insertion opening with a key shaped portion perpendicular to the feed direction for both the first and second key elements would prevent the spring from passing through the insertion openings 24A, 24B, 24C, 24D into the enlarged elongate slots 25A, 25B, 25C, 25D, and yield a non-functional arrangement for the feed mechanism. Therefore, those skilled in the art would be without a basis upon which to combine the teaching of the references to produce a functioning device. Therefore, the combination would not be obvious to those of ordinary skill in the art."

The examiner would like to thank the applicant for the detailed and thorough explanation of why it is believed that one of ordinary skill in the art would not make the combination of Jones et al in view of Crawford. In response, the examiner would like to refer the applicant to Rousseau et al (US Pat 5734402), which was one the cases cited in the parent case. For the purposes of this argument, this case represents the combination of Jones et al in view of Crawford. The ink stick in Rousseau does not have the lateral non-linear key elements of the ink stick in Jones et al. However, it does share the transverse segments of Jones et al that are being argued against by the applicant. Furthermore, the ink stick feed system of Rousseau shares the same characteristics of the system of Crawford in that it omits transverse segments and opens instead into elongate slots 25A-D (figure 1). It also has a cover 30. The applicant has asserted that it would be impossible to combine an ink stick with non-linear key portions like the one in Jones et al with an ink stick feed system like the one in Crawford. In light of Rousseau et al, this

Art Unit: 2853

is clearly not the case. Rousseau shows that one of ordinary art would, and in fact has, combined the inventive concepts of Jones et al and Crawford. Rousseau et al was not used as a 102 reference because its lateral segments do not contain the same non-linear elements as the ink stick in Jones et al. However, the applicant has not argued any problems with the lateral segments of Jones et al. The examiner believes that this response also answers the applicant's concerns regarding the other claims.

As a final note, the examiner would like to explain how the phrase "substantially" identical is being interpreted. As one of ordinary skill in the art is well aware, the purpose of a key plate is to prevent the wrong type of ink from being fed into the system. As such, the key plate rejects ink sticks of different shape and only allows ink sticks of substantially identical shape to be fed into the system. In light of this purpose, the examiner is interpreting a key plate that allows an ink stick to enter into the feed channel to have a "substantially" identical shape as the ink stick. Therefore, the fact that the key plate of Crawford opens up into a gap along its transverse segment does not mean that it does not have a substantially identical shape to the ink stick in Jones et al. Looking once again at Rousseau et al, it is clear that the ink stick 10 has a shape corresponding to the receptacle 24A. One of ordinary skill in the art would say that receptacle 24A has a substantially identical shape to ink stick 10. If this were not so, ink stick 10 would not be able to pass into the feed channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.


Art Unit: 2853

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03/04/06

ls1 156

 3/5/06
MANISH S. SHAH
PRIMARY EXAMINER